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## PATENT ABSTRACTS OF JAPAN

(11)Publication number:

2004-296386

(43)Date of publication of application: 21.10.2004

(51)Int.CI.

H01M 4/02

H01M 4/38

H01M 4/62

H01M 4/64

H01M 10/40

(21)Application number: 2003-090502

(71)Applicant: SANYO ELECTRIC CO LTD

(22)Date of filing:

28.03.2003

(72)Inventor: FUKUI ATSUSHI

**TORIMAE MARIKO** 

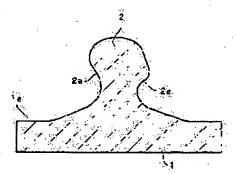
KUSUMOTO YASUYUKI

TARUI HISAKI

(54) ANODE FOR LITHIUM SECONDARY BATTERY AND ITS MANUFACTURING METHOD (57)Abstract:

PROBLEM TO BE SOLVED: To improve cycle characteristics by heightening the adhesiveness of a mixture layer with a collector 1 in an anode for a lithium secondary battery obtained by sintering the mixture layer including active material particles containing silicon and/or a silicon alloy and a binder on the surface 1a of a metal foil collector 1 under a non-oxidizing atmosphere.

SOLUTION: The anode for lithium secondary battery is characterised in that an unevenness is formed on the surface 1a of the metal foil collector 1, and at least a part of the side faces of a projection part 2 has warped 2a shapes expanded further outward as they come near tip end, and the binder enters the spaces of the warped parts 2a.



### **LEGAL STATUS**

[Date of request for examination]

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[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration] [Date of final disposal for application]
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## (19) 日本国特許厅(JP)

# (12)公開特許公報(A)

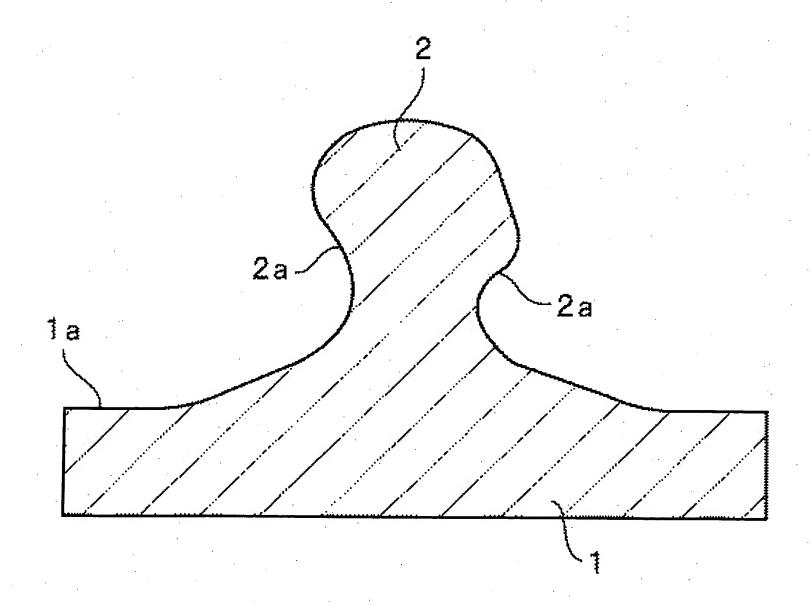
(11)特許出願公開番号

特開2004-296386 (P2004-296386A)

(43) 公開日 平成16年10月21日(2004.10.21)

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|---------------------------|---------------------------------------|-----------------|----------|--------|----------|-------------|---------|
| (51) Int.C1. <sup>7</sup> |                                       | FI              |          |        | テーマ      | コード(        | <br>参考) |
| HO1M 4/0                  | <b>)2</b>                             | HO1M            | 4/02     | D      | 5H0      | 17          |         |
| HO1M 4/3                  | 38                                    | HO1M            | 4/38     | Z      | 5H0      | 29 .        |         |
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| HO1M 4/0                  | 34                                    | HO1M            | 4/64     | A      |          | •           |         |
| HO 1 M 10/4               | 10                                    | HO1M            | 10/40    | Z      | •        |             |         |
|                           | 7                                     |                 | 審査請求     | 未請求    | 請求項の数 14 | O L (       | 全 14 頁  |
| (21) 出願番号                 | 特願2003-90502                          | (P2003-90502)   | (71) 出願人 | 000001 | 889      |             |         |
| (22) 出願日                  | 平成15年3月28日                            | E (2003. 3. 28) |          | 三洋電    | 機株式会社    |             |         |
|                           |                                       | •               |          | 大阪府    | 守口市京阪本通2 | 2丁目5₹       | 65号     |
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(54) 【発明の名称】リチウム二次電池用負極及びその製造方法

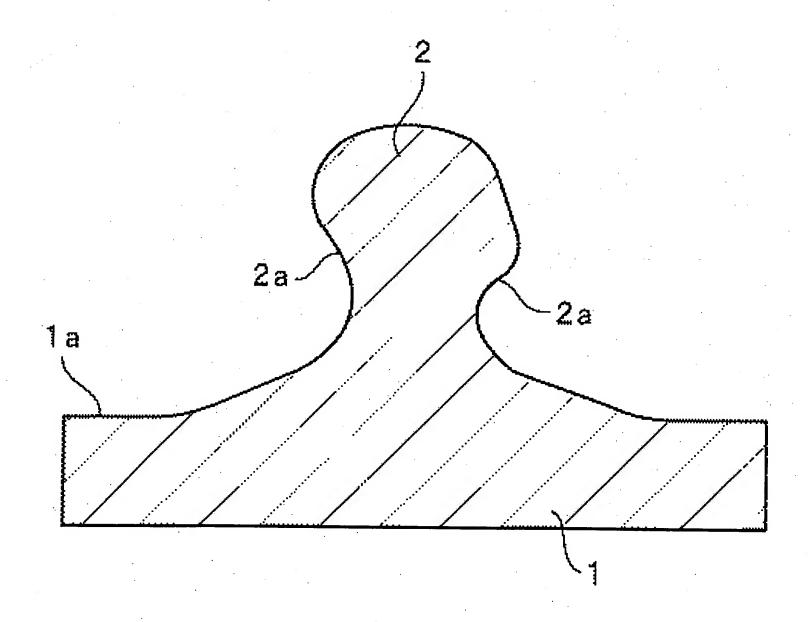


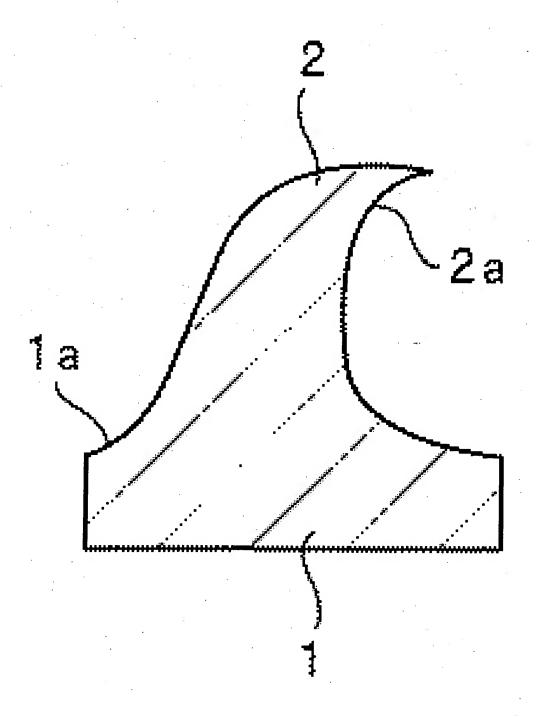
| 電池  | 集電体 | サイクル寿命 |
|-----|-----|--------|
| A 1 | a 1 | 1 0 0  |
| B 1 | b 1 | 4 2    |

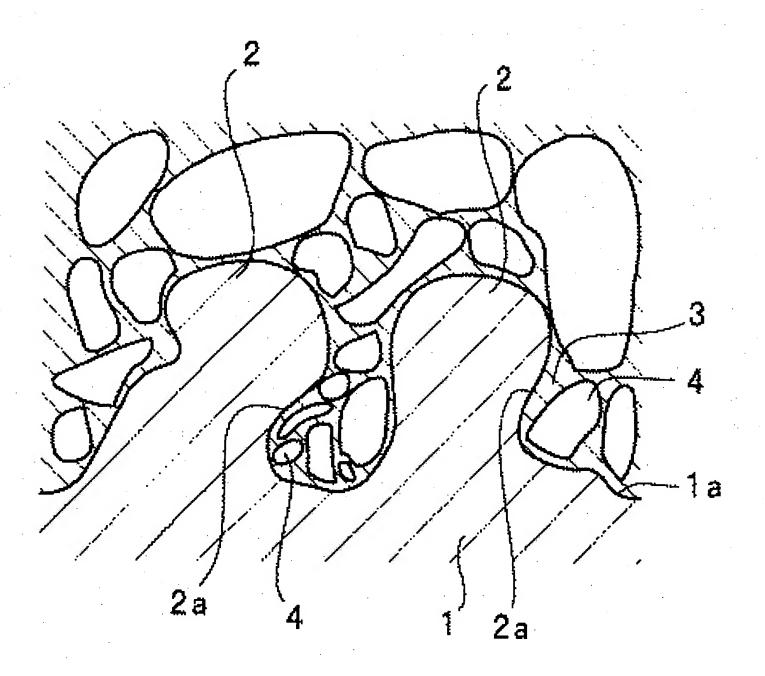
| 集電体 | 集電体表面粗さ<br>(μm)   | サイクル寿命   |
|-----|-------------------|--|
| a 1 | 1. 0              | 100  |
| a 2 | 0.5               | 9 5  |
| a 3 | 0.2               | 7 9  |
| a 4 | 0.17              | 6 2  |
|     |                   |  |
|     | a 1<br>a 2<br>a 3 | <ul><li>無理体 (μm)</li><li>a 1 1.0</li><li>a 2 0.5</li><li>a 3 0.2</li></ul> |

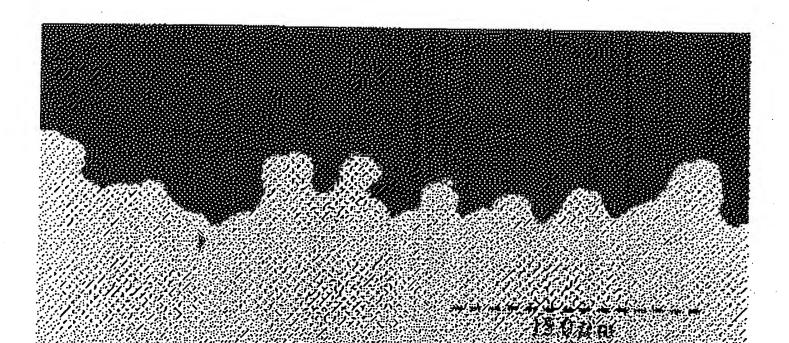
|     |            | .**    |
|-----|------------|--------|
| 電池  | 電極熱処理条件    | サイクル寿命 |
| A 1 | 400℃, 30時間 | 1 0 0  |
| A 5 | 600℃, 10時間 | 6 0    |
| B 2 | 無し         | 1 7    |

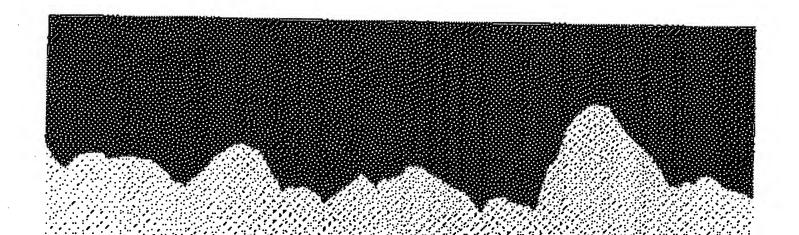
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|-----|-------|--|-------|-----|---|
|     |       |  |       |     |   |
|     |       |  |       |     |   |
| 電池  | 添加導電性 | 生粉末                                    | サイ    | クル寿 | 命 |
| A 1 | 無し    |  | -     | 100 | ! |
| A 6 | 銅     |  |       | 102 |   |
|     |       | ······································ | ····· |     |   |
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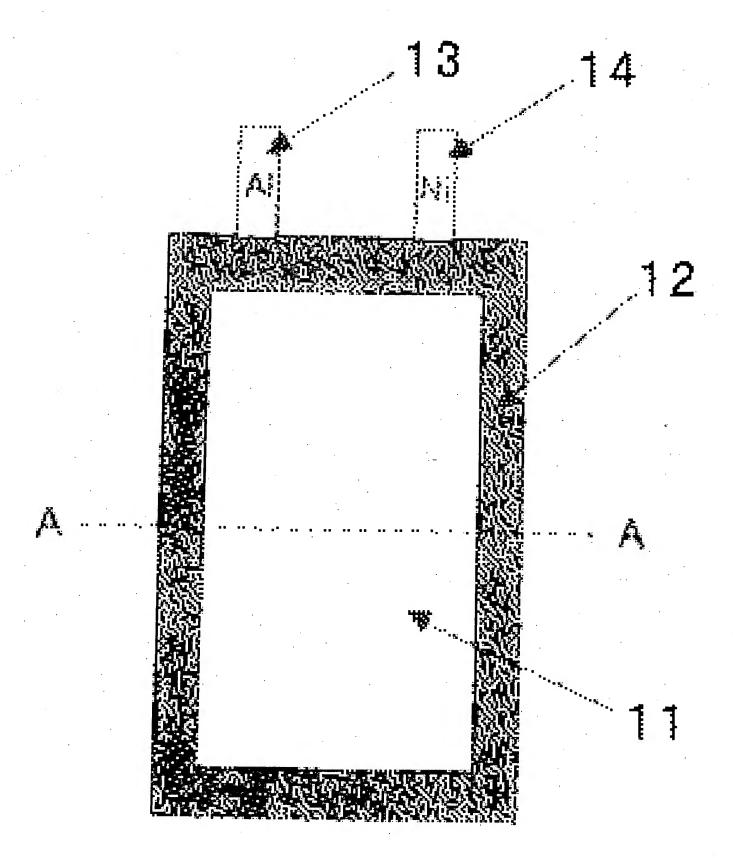


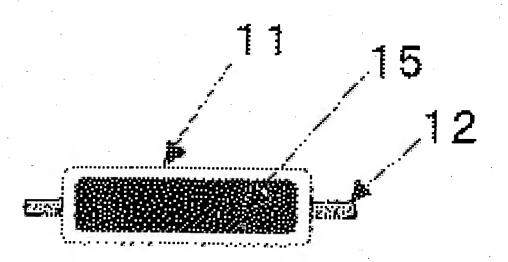






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#### フロントページの続き

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- Fターム(参考) 5H017 AA03 \* AS10 \* BB16 \* CC01 \* DD01 \* EE01 \* HH03 \* HH05 \*
  - " 5H029 AJ02 AJ05 AK03 AL11 AM03 AM05 AM07 BJ04 CJ02 CJ24 A
  - CJ25 · CJ28 · DJ07 · DJ08 · DJ14 · DJ16 · EJ01 · EJ13 · HJ04 ·
  - \* SH050 AA02 AA07 BA17 CA08 CB11 DA04 DA11 EA23 FA15 FA17
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